

# Counting module **MATRIX**

## 3D Time-of-Flight (TOF) Sensor

### Description

The high-precision infrared 3D sensors with Time-of-Flight (TOF) technology enable the detection of passengers with an accuracy of 99%. With the HydralP passenger counting systems (APCS), the differentiation of boarding and alighting persons into adults and children is possible. Objects like bicycles and wheelchairs can be identified with an accuracy of 80%.

The sensor was specially developed for use in buses and rail vehicles and works highly reliably even under difficult lighting conditions, high humidity and dust exposure.

### Article Number

VZM300122	Counting module: MATRIX (Flush mount, B, sCON cable, road)
VZM300123	Counting module: MATRIX (Surface mount, B, sCON cable, road)
VZM300199	Counting module: MATRIX (Flush mount, B, PoE)
VZM300274	Counting module: MATRIX (Flush mount, B, PoE, rail)
VZM300272	Counting module: MATRIX (Flush mount, B, sCON cable, rail)
VZM300273	Counting module: MATRIX (Surface mount, B, sCON cable, rail)
VZG300025	Mounting frame MATRIX (Flush mount)
VZG300023	Mounting frame MATRIX (Surface mount)
SN0300025	Software: APCS Sensor MATRIX – Activation of function "Door Clear"
SN0300026	Software: APCS Sensor MATRIX – Activation of function "Bike Counting"
SN0300027	Software: APCS Sensor MATRIX – Activation of function "Wheelchair Counting"



### Main features

- Sensor for HydralP APCS (VDV301 and ITxPT ready)
- Time of Flight 3D technology for highest precision (99%)
- Available as non PoE and PoE
- Certified for use in road and rail vehicles (road/rail)
- Products are supplied as a complete set (sensor and connection unit)

<b>Housing</b>	Diecast aluminum housing Optical element made of macrolon 2450 Ingress Protection: IP65 VZM300274, VZM300272, VZM300273: PCB with protective lacquer according to EN50155 (PC2)
<b>Interfaces</b>	Sensor connector Ethernet: 100 Mbit/s (M12 female connector) / CAN bus: max. 125 kbit/s (M12 male connector)
<b>Power supply</b>	VZM300122, VZM300123, VZM300272, VZM300273: 24 VDC (16.8 ...30 VDC) VZM300199, VZM300274: PoE 48 VDC
<b>Power consumption</b>	max. 9 W (Rated power consumption with vehicle door open and +24 VDC, ambient temperature +25°C) VZM300199, VZM300274: Power over Ethernet according to IEEE 802.3af: Type 1, Class 0, max. 12.95 W (15.4 W incl. reserve)
<b>Environment</b>	Operation temperature: -25°C to +70°C Storage temperature: -40°C to +80°C Humidity: <95% (non condensing)
<b>Dimensions</b>	VZM300122, VZM300199, VZM300200, VZM300274: 188 x 22 x 58 mm (W x H x D) VZM300123, VZM300273: 165.5 x 22 x 53 mm (W x H x D)
<b>Weight</b>	VZM300122, VZM300199, VZM300274: sensor 340 g, connection unit 200 g VZM300123, VZM300273: sensor 260 g, connection unit 200 g
<b>Conformity &amp; Certifications</b>	EN 50155: 2017, EN 45545-2: 2020, IEC 60068-2-1, IEC 60068-2-2, IEC 61373 2010, IEC 60068-2-6: 2007, IEC 60068-2-64: 2008, IEC 60068-2-27: 2008, IEC 60721-3-5: 1997, IEC 60529: 1989 + A1: 1999, EN 62471: 2008, DIN 5510-2: 2009-05, UN ECE R10, UN ECE R118

Information refers to the current states and may be subject to unannounced changes.

22/06/2023